Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-7 (Cancelled)

Claim 8 (currently amended): An infrared ray lamp comprising:

a heating element which is formed of a carbon-based substance including at least crystallized carbon, a resistance value adjustment substance and amorphous carbon which has a substantially plate shape, the width of which is larger than its thickness by five times or more,

a glass tube in which said heating element is hermetically sealed, and

an electrode embedded at both end portions of said glass tube, electrically connected to both ends of said heating element respectively and also electrically connected to an external electric circuit,

a connection device which is secured to each end portion of said heating element, thereby electrically connected to said heating element, and

a lead wire having a spring portion which is secured to said connecting device and said electrode and pulls

said heating element at a predetermined tension, and electrically connecting said connecting device and said electrode.

Claim 9 (currently amended): An infrared ray lamp in accordance with claim 8, wherein

the spring portion of said lead wire is formed in a spiral shape, and

said spring portion has a larger diameter than the width of said heating element ~~further comprising:~~

~~a connection device secured to both end portions of said heating element respectively and electrically connected to said heating element, and~~

~~lead wires secured to said connection devices and said electrodes so as to pull both ends of said heating element at a predetermined tension and used to electrically connect said connection devices to said electrodes~~.

Claim 10 (cancelled)

Claim 11 (original): An infrared ray lamp in accordance with claim 8, wherein a reflection film for reflecting infrared rays is provided on the internal or external face of said glass tube so that the emission intensity of said infrared rays emitted from said heating

element has a predetermined distribution.

Claim 12 (original): An infrared ray lamp in accordance with claim 11, wherein said reflection film having a semicylindrical shape being substantially coaxial with the center line of said heating element in the longitudinal direction thereof is provided along substantially similar length as that of the infrared ray emitting portion of said heating element.

Claim 13 (original): An infrared ray lamp in accordance with claim 11, wherein the cross section of said reflection film has a shape formed of a part of a parabola having its focus substantially on the center line of said heating element in the longitudinal direction thereof, along substantially similar length as that of the infrared ray emitting portion of said heating element.

Claim 14 (original): An infrared ray lamp in accordance with claim 11, wherein the cross section of said reflection film has a shape formed of a part of an ellipse having one of its focuses substantially on the center line of said heating element in the longitudinal direction thereof, along substantially similar length as that of the infrared ray emitting portion of said heating

element.

Claim 15 (original): An infrared ray lamp in accordance with claim 12, wherein the central portion of the cross section of said reflection film is disposed so as to be opposed to the wider side portion of said heating element.

Claim 16 (original): An infrared ray lamp in accordance with claim 12, wherein the central portion of the cross section of said reflection film is disposed so as to be opposed to the narrower side portion of said heating element.

Claim 17 (currently amended): A heating apparatus provided with an infrared ray lamp comprising:

a heating element which is formed of a carbon-based substance including at least crystallized carbon, a resistance value adjustment substance and amorphous carbon, and which has a substantially plate shape, the width of which is larger than its thickness by five times or more,

a glass tube in which said heating element is hermetically sealed, and

an electrode embedded at both end portions of said glass tube, electrically connected to both ends of said

heating element respectively and also electrically connected to an external electric circuit,

a connection device which is secured to each end portion of said heating element, thereby electrically connected to said heating element, and

a lead wire having a spring portion which is secured to said connecting device and said electrode and pulls said heating element at a predetermined tension, and electrically connecting said connecting device and said electrode.

Claim 18 (currently amended): A heating apparatus in accordance with claim 17, wherein

the spring portion of said lead wire is formed in a spiral shape, and

said spring portion has a larger diameter than the width of said heating element

~~said infrared ray lamp further comprises:~~

~~a connection device secured to both end portions of said heating element respectively and electrically connected to said heating element, and~~

~~lead wires secured to said connection devices and said electrodes so as to pull both ends of said heating element at a predetermined tension and used to electrically connect said connection devices to said electrodes~~.

Claim 19 (original): A heating apparatus in accordance with claim 17 or 18, further comprising a reflection plate for reflecting infrared rays so that the intensity of said infrared rays emitted from said heating element has a predetermined directional distribution.

Claim 20 (currently amended): A heating apparatus in accordance with claim [[18]] 19, wherein said reflection plate has a semi-cylindrical shape being substantially coaxial with the center axis of said infrared ray lamp.

Claim 21 (currently amended): A heating apparatus in accordance with claim [[18]] 19, wherein the cross section of said reflection plate has a shape formed of a part of a parabola having its focus substantially on the center axis of said infrared ray lamp.

Claim 22 (currently amended): A heating apparatus in accordance with claim [[18]] 19, wherein the cross section of said reflection plate has a shape formed of a part of an ellipse having one of its focuses substantially on the center axis of said infrared ray lamp.

Claim 23 (original): A heating apparatus in accordance with claim 19, wherein the central portion of the cross section of said reflection plate is disposed so as to be opposed to the wider side portion of said heating element.

Claim 24 (original): A heating apparatus in accordance with claim 19, wherein the central portion of the cross section of said reflection plate is disposed so as to be opposed to the narrower side portion of said heating element.

Claim 25 (currently amended): A method of producing an infrared ray lamp, comprising:

a step of forming a heating element which is formed of a carbon-based substance including at least crystallized carbon, a resistance value adjustment substance and amorphous carbon into a substantially plate shape, the width of which is larger than its thickness by five times or more,

a step of disposing a lead wire having a spring portion which pulls said heating element at a predetermined tension,

~~a step of forming a glass tube by forming glass into a substantially cylindrical shape,~~

a step of hermetically sealing ~~a substantially plate~~

said heating element~~, the width of which is larger than its thickness by five times or more,~~ inside said glass tube so that the center line of said heating element in the longitudinal direction thereof is substantially coaxial with the center axis of said glass tube, and

a step of forming a reflection film for reflecting infrared rays into a substantially semi-cylindrical shape on the external face of the cylindrical shape of said glass tube so as to substantially include the range of the disposition of said heating element in the axial direction thereof.

Claim 26 (currently amended): A method of producing an infrared ray lamp, comprising:

a step of forming a heating element which is formed of a carbon-based substance including at least crystallized carbon, a resistance value adjustment substance and amorphous carbon into a substantially plate shape, the width of which is larger than its thickness by five times or more,

~~a step of forming a glass tube by forming glass into a substantially cylindrical shape,~~

a step of forming a reflection film for reflecting infrared rays into a predetermined substantially semi-cylindrical shape on the external face or the internal face of the cylindrical shape of said glass

tube, ~~and~~

a step of disposing a lead wire having a spring portion which pulls said heating element at a predetermined tension, and

a step of disposing ~~a substantially plate~~ said heating element~~, the width of which is larger than its thickness by five times or more,~~ so as to be included in the axial range wherein said reflection film is disposed, and of hermetically sealing said heating element inside said glass tube.

Claim 27 (currently amended): An infrared ray lamp comprising:

a heating element having a substantially plate shape, the width of which is larger than its thickness by five times or more, and being formed of a carbon-based substance including at least crystallized carbon, a resistance value adjustment substance and amorphous carbon,

a heat emitting block ~~which is formed of a conductive material and electrically connected to one end~~ having a good conductivity which is bonded to each end portion of said heating element,

an internal lead wire having a close-contact portion wound around said heat-emitting block and a spring portion,

a glass tube in which said heating element, said heat emitting block, said close-contact portion, and said spring portion is hermetically sealed, and

an electrode embedded at both end portions of said glass tube, electrically connected to ~~both ends of said heating element~~ said inner lead wire respectively and also electrically connected to an external electric circuit.

Claim 28 (previously presented): A heating apparatus provided with an infrared ray lamp comprising,

a heating element having a substantially plate shape, the width of which is larger than its thickness by five times or more, and being formed of a carbon-based substance including at least crystallized carbon, a resistance value adjustment substance and amorphous carbon,

a heat emitting block ~~which is formed of conductive material and electrically connected to one end of~~ having a good conductivity which is bonded to each end portion of said heating element,

an internal lead wire having a close-contact portion wound around said heat-emitting block and a spring portion,

a glass tube in which said heating element, said heat emitting block, said close-contact portion, and said

spring portion is hermetically sealed, and

an electrode embedded at both end portions of said glass tube, electrically connected to ~~both ends of said heating element~~ said inner lead wire respectively and also electrically connected to an external electric circuit.

Amendments to the Drawings:

The attached sheet of drawings includes changes to Figs. 9, 11, 12, 14, 15, 17, 20, 24 and 26.

Each drawing has been amended to include appropriate figure labels (Fig. 9(a), Fig. 9(b) etc.).

Figs. 20-26 have been labeled "Prior Art".

Attachment: Replacement Sheet (13 sheets)

Annotated Sheet Showing Changes (13 sheets)